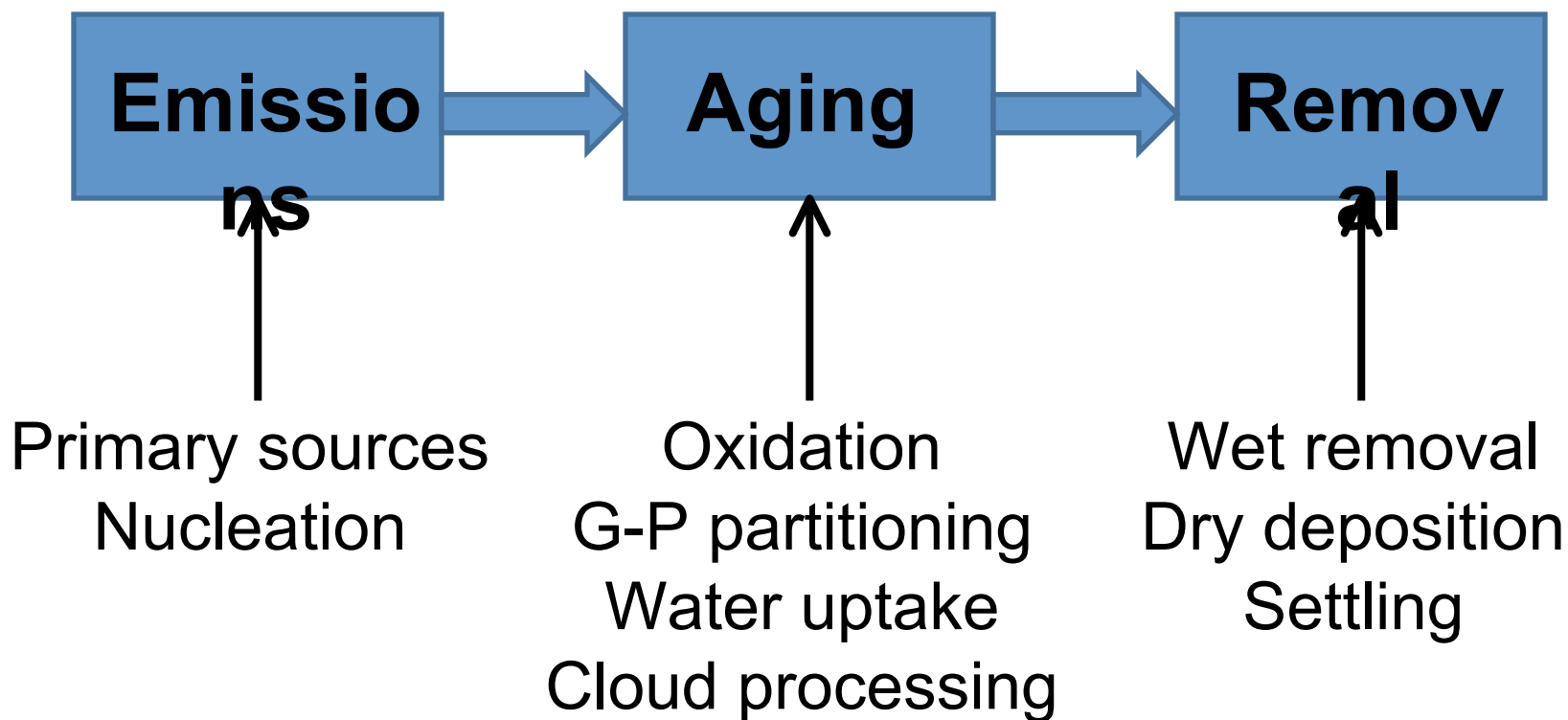


# Aerosol Life Cycle



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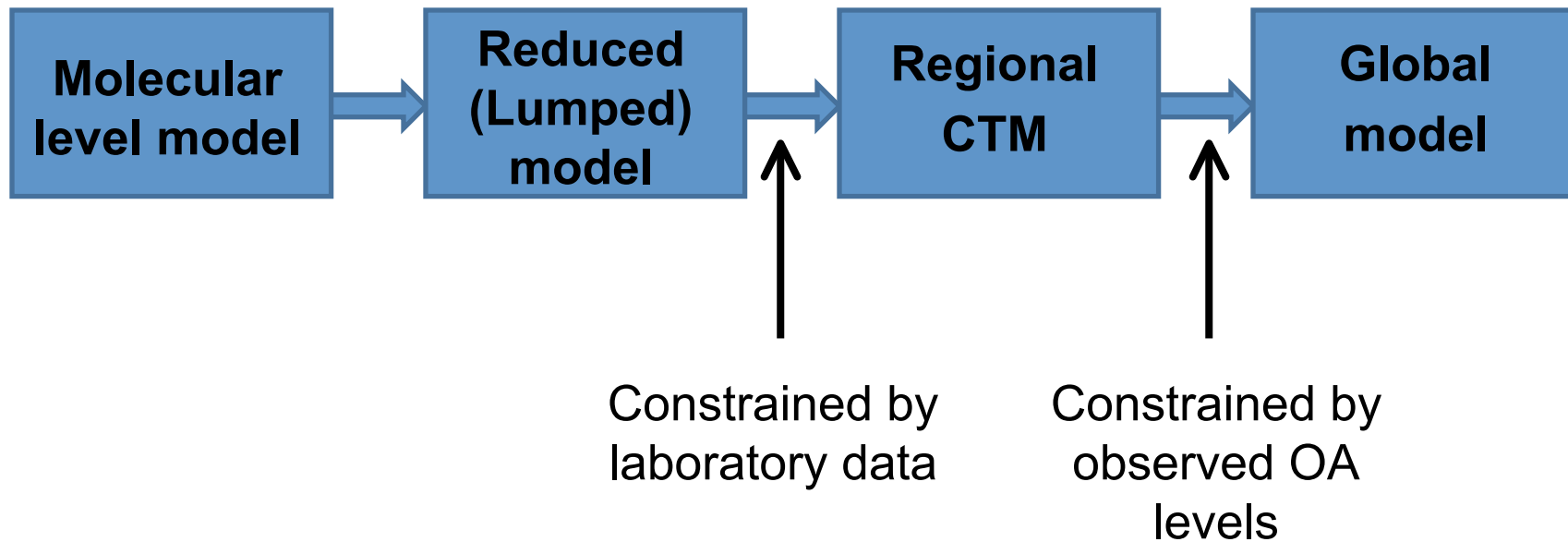
# Major Conclusion

1. Models must move toward predicting aerosol size and composition.
  - Aerosols are multi-dimensional; size and composition are of first-order importance in aerosol life cycles.
2. Emissions are poorly characterized with respect to aerosol size distribution and volatility. Need methodologies to prepare emission inventories for models that treat aerosol mass and size distribution.
3. The relative importance of nucleation as a source of particle number is not well constrained. Critical interest is in particles that grow to  $\sim 50$  nm.

## **Major Conclusion (cont.)**

4. Representation of wet removal in atmospheric models has been focused on highly soluble sulfate aerosols. This needs to be revisited for more complex aerosols.
  - Can a taxonomy of CCN classes be developed?
5. Cloud processing
  - Is cloud processing a significant source of new particle formation?
  - What is the contribution of cloud processing to production of SOA?

# SOA Modeling



## **Major Conclusion (cont.)**

6. A fundamental understanding of processes governing aerosol size and composition is needed.
7. Inverse modeling
  - Useful for evaluating emission distributions
  - Needs to be developed for aerosols in models